

A1  
Preferably, the bypass valve 82 is normally open such that the piston 78 is normally deactivated.  
The solenoid 84 is preferably activated by a signal from an engine electronic control unit 90.--

**IN THE CLAIMS:**

Please cancel non-elected claims 10-13 and 21-30 without prejudice or disclaimer.

Please amend claims 1, 5, 14, 16, 31 and 38 as follows:

Sub 10/2/01  
A2  
1. (Amended) A high pressure piston pump, comprising:  
a housing having a low pressure fuel inlet and a high pressure fuel outlet;  
at least two pistons disposed in the housing;  
a driveshaft for supplying power to drive the at least two pistons; and  
a bypass valve fluidly connected to at least one of the at least two pistons to deactivate  
the at least one piston, wherein the piston to which the bypass valve is connected to has a surface  
area that is different than a surface area of the other piston of the at least two pistons.

Sub 10/2/01  
A3  
5. (Amended) A high pressure piston pump, comprising:  
a housing having a low pressure fuel inlet and a high pressure fuel outlet;  
at least two pistons disposed in the housing;  
a driveshaft that drives the at least two pistons; and  
a bypass valve fluidly connected to at least one of the at least two pistons to deactivate  
the at least one piston, wherein the piston to which the bypass valve is connected to has a surface  
area that is larger than a surface area of the other piston of the at least two pistons.

Sub C1  
A4  
14. (Amended) A high pressure radial type piston pump, comprising:  
a housing having a low pressure fuel inlet and a high pressure fuel outlet;  
three pistons disposed in the housing;

*OK 102*  
a driveshaft for supplying power to drive the three pistons; and  
a bypass valve fluidly connected to one of the three pistons to deactivate the one piston,  
wherein the piston to which the bypass valve is connected to has a surface area that is different  
than a surface area of each of the other pistons.

*sub c'*  
16. (Amended) A high pressure radial type piston pump, comprising:

*OK 103*  
a housing having a low pressure fuel inlet and a high pressure fuel outlet;  
three pistons disposed in the housing;  
a driveshaft that drives the three pistons; and  
a bypass valve fluidly connected to one of the three pistons to deactivate the one piston,  
wherein the bypass valve is normally open such that the one piston is normally deactivated.

31. (Amended) A method of varying the flow output of a high pressure piston pump having at  
least two pistons comprising:

*OK 102*  
pumping fluid by a first piston of the at least two pistons, the first piston having a first  
surface area;  
pumping fluid by a second piston of the at least two pistons, the second piston having a  
second surface area different from the first surface area; and  
deactivating at least one of the at least two pistons.

*OK 102*  
38. (Amended) A high pressure fuel injection system, comprising:

*OK 102*  
a source of fuel;  
a low pressure pump;  
a high pressure piston pump, the low pressure pump being disposed between the fuel  
source and the high pressure piston pump;  
a fuel rail including a plurality of fuel injectors, the high pressure piston pump being  
disposed between the low pressure pump and the fuel rail; and  
a fuel return line connecting the fuel rail to a low pressure side of the high pressure pump;

*Sub B5*  
wherein the high pressure piston pump comprises a housing having a low pressure fuel inlet connected to an output of the low pressure pump, a high pressure fuel outlet connected to an input of the fuel rail, at least two pistons disposed in the housing, and a bypass valve fluidly connected to at least one of the at least two pistons to deactivate the at least one piston and wherein the at least one piston to which the bypass valve is connected to has a surface area that is different than a surface area of the other piston of the at least two pistons.

Please add the following new claims:

*Sub C1*  
*A/B1*  
*103*  
43. (New) The high pressure fuel injection system according to claim 38, wherein the bypass valve includes a normally open valve.

44. (New) The high pressure fuel injection system according to claim 43, wherein the bypass valve includes a solenoid adapted to open and close the bypass valve.

*Sub B6*  
*A/B1*  
*103*  
45. (New) A high pressure fuel injection system, comprising:  
a source of fuel;  
a low pressure pump;  
a high pressure piston pump, the low pressure pump being disposed between the fuel source and the high pressure piston pump;  
a fuel rail including a plurality of fuel injectors, the high pressure piston pump being disposed between the low pressure pump and the fuel rail; and  
a fuel return line connecting the fuel rail to a low pressure side of the high pressure pump;  
wherein the high pressure piston pump comprises a housing having a low pressure fuel inlet connected to an output of the low pressure pump, a high pressure fuel outlet connected to an input of the fuel rail, at least two pistons disposed in the housing, and a normally open bypass valve fluidly connected to at least one of the at least two pistons to deactivate the at least one piston.

*Xinger*  
*Revised + 10m*

*Subcl*

46. (New) The high pressure piston pump of claim 5, wherein the bypass valve includes a solenoid for opening and closing the bypass valve.

47. (New) The high pressure piston pump of claim 46, wherein the bypass valve is normally open such that the at least one piston is normally deactivated.

48. (New) The high pressure piston pump of claim 46 comprising three pistons wherein the bypass valve is fluidly connected to only one of the three pistons.

49. (New) The high pressure radial type piston pump of claim 16, wherein the bypass valve includes a solenoid for opening and closing the bypass valve.

50. (New) The high pressure radial type piston pump of claim 16, wherein the one piston to which the bypass valve is connected has a surface area that is larger than a surface area of each of the other two pistons.

51. (New) The high pressure radial type piston pump of claim 50, wherein a surface area of the one piston to which the bypass valve is connected to is approximately twice the surface area of each of the other two pistons.

52. (New) The high pressure radial type piston pump of claim 49, wherein the solenoid is activated by a signal from an engine electronic control unit.

53. (New) The high pressure radial type piston pump of claim 16, wherein the driveshaft includes a cam portion that drives the three pistons.